

## Nano Technology and Textiles

### “New Textiles”

- Controlastic
  - 1939-1940 World’s Fair
- Nylon
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  - “Strong as steel, fine as a spider’s web”
- Lyocell
  - 1996
  - Similar to rayon and cotton
  - Tencel
- Aramid, Kevlar
  - Nylon variant
  - Heat resistant
  - Extremely strong

### NanoTechnology

- Nano or submicron scale
- Nano “whiskers” built atom by atom
- Permanent fuzz—changes fabric itself, create desirable attributes in fabrics

### Bug-off Clothes

#### Dri-release

#### Fragrant Fabrics

#### Easy Care—No-iron, No-soil

#### Comfort

#### Other Advances

Increased elasticity/stretch  
Softer hand  
Color changes

Antibacterial agents  
Increased luminosity  
Amino acids incorporated

### Color/Design

Electric Plaid

Luminex

### DNA

- Copy-proof ink with engineered DNA strands
- Authenticate American-made textiles

### E-Textiles

- Behave like an electronic circuit
- Create a circuit element or a circuit

### A Smarter Shoe

- Adidas 1 sneaker

- Nike Free 5.0
- VectraSense Raven ThinkShoe
- Dada Sprees

#### Talking Textiles

- Fabric contains electronic circuits
- Intelligent polymers
- Sense temperature, pressure
- Detect light, movement, odors
- Conduct electricity

#### Smart Shirt

- Monitors vital signs

#### Your Own PAN (Personal Area Network)

#### Help for Disabled

#### Invisibility—Optical Camouflage

- Clothing is movie screen
- Video camera behind wearer

#### Sources:

Newman, C. (January 2003). *National Geographic*, 203, 1, 51-73.

Beith, M. (June 9, 2003). Cool threads. *Newsweek*, E4-E6.

Cliff, G. (April 2004). Smart Threads. *Popular Mechanics*, 181, 4, 78-81.

<http://www.luminex.it/index.html> Luminex fabric

<http://www.ifmachines.com/eplaid.html> Electric Plaid fabric

[http://www.gatech.edu/news-room/archive/news\\_releases/sensatex.html](http://www.gatech.edu/news-room/archive/news_releases/sensatex.html) Smart Shirt designer

<http://www.scottevest.com/> Personal Area Networks, solar panels

<http://www.fabrics.net/amycorn.asp> Fabric from corn

<http://www.enn.com/biz.html?id=676> Fabric from bamboo

[http://eartheasy.com/wear\\_ecospun.htm](http://eartheasy.com/wear_ecospun.htm) EcoSpun fibers

<http://www.dri-release.com/> Dri Release technology

[http://www.wool.com/sensory\\_tech.php](http://www.wool.com/sensory_tech.php) Sensory perception technology



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